Figure 1

Pol activity and Exo activity in %

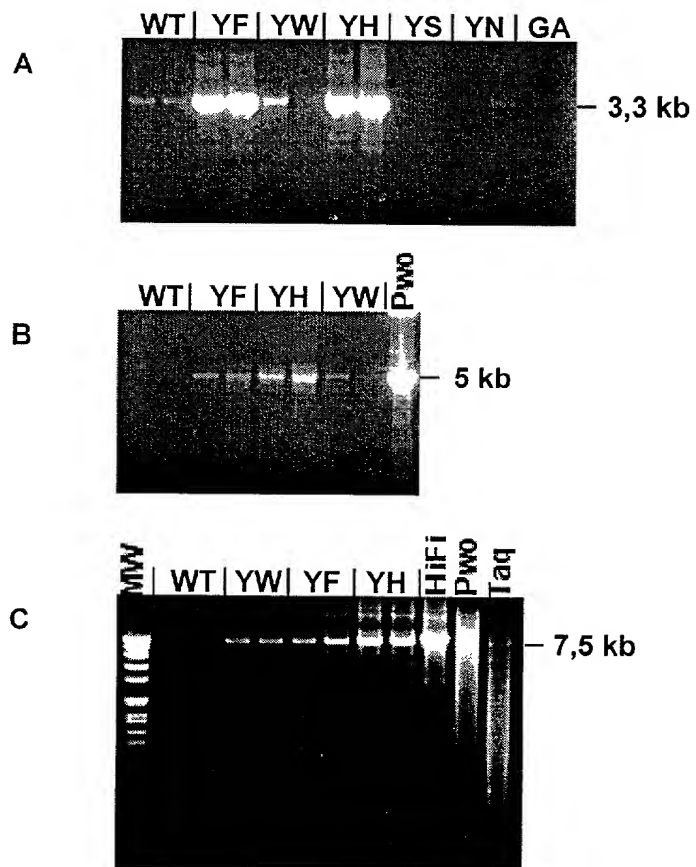|	WT	Y387F	Y387W	Y387H	Y387N	Y387S	G389A
Pol	100	160	92	93,6	6,4	17,8	10,7
Exo	100	90	71	98	205	187	236
Pol/Exo	1	1,77	1,29	0,96	0,03	0,09	0,04

Figure 2

Figure 3
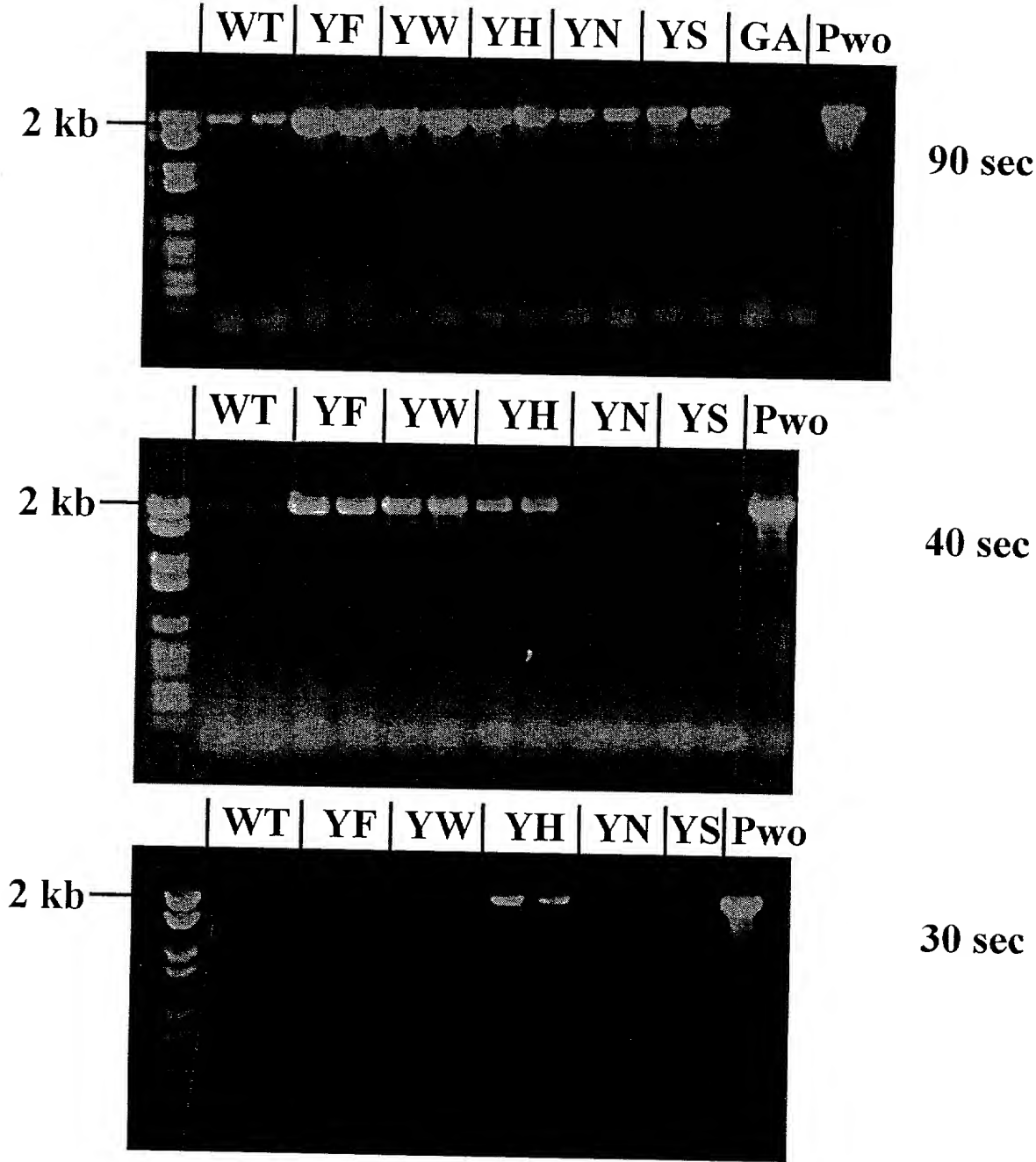
Figure 4

Figure 5

Figure 6

MW WT YF YW GA YS YN YH

114
97
66

45

21

14
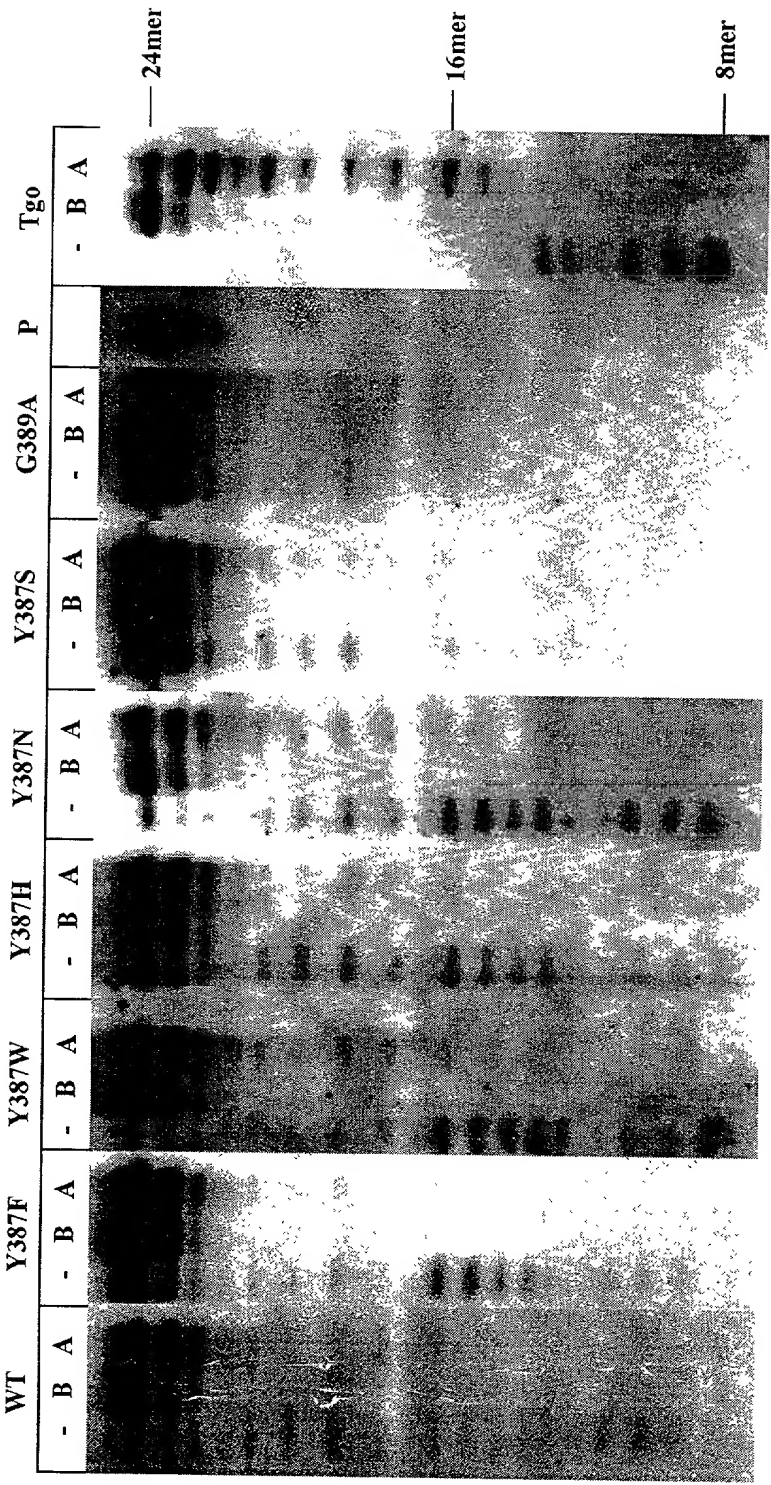
Figure 7

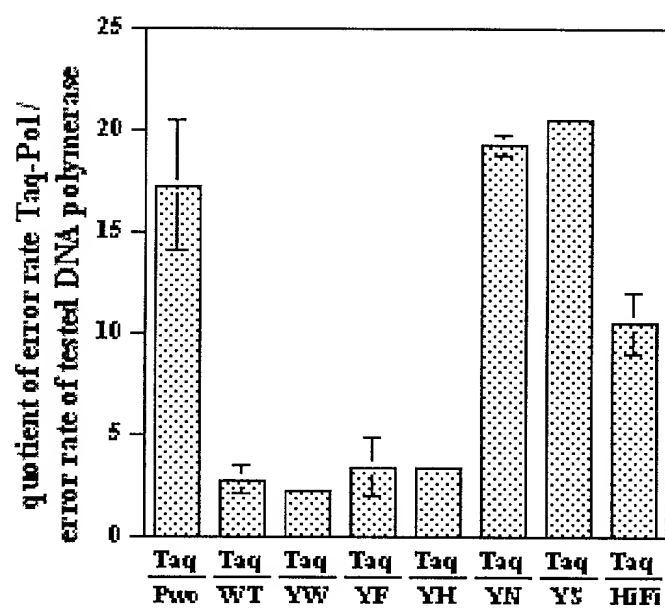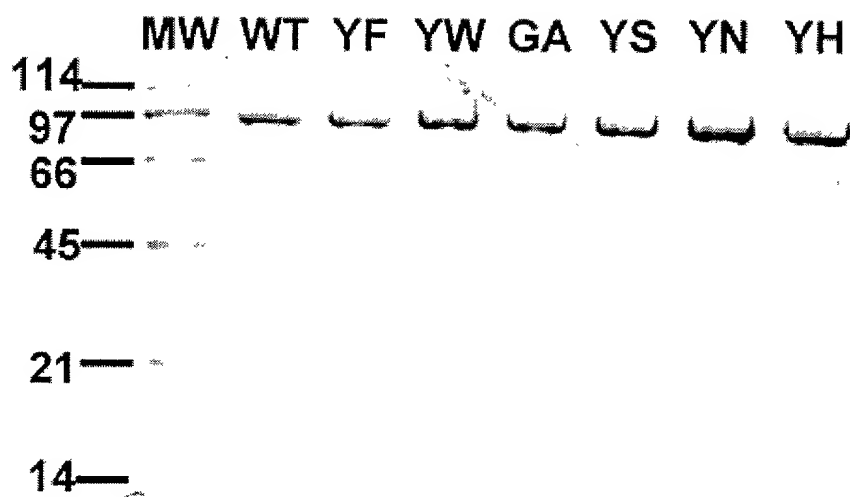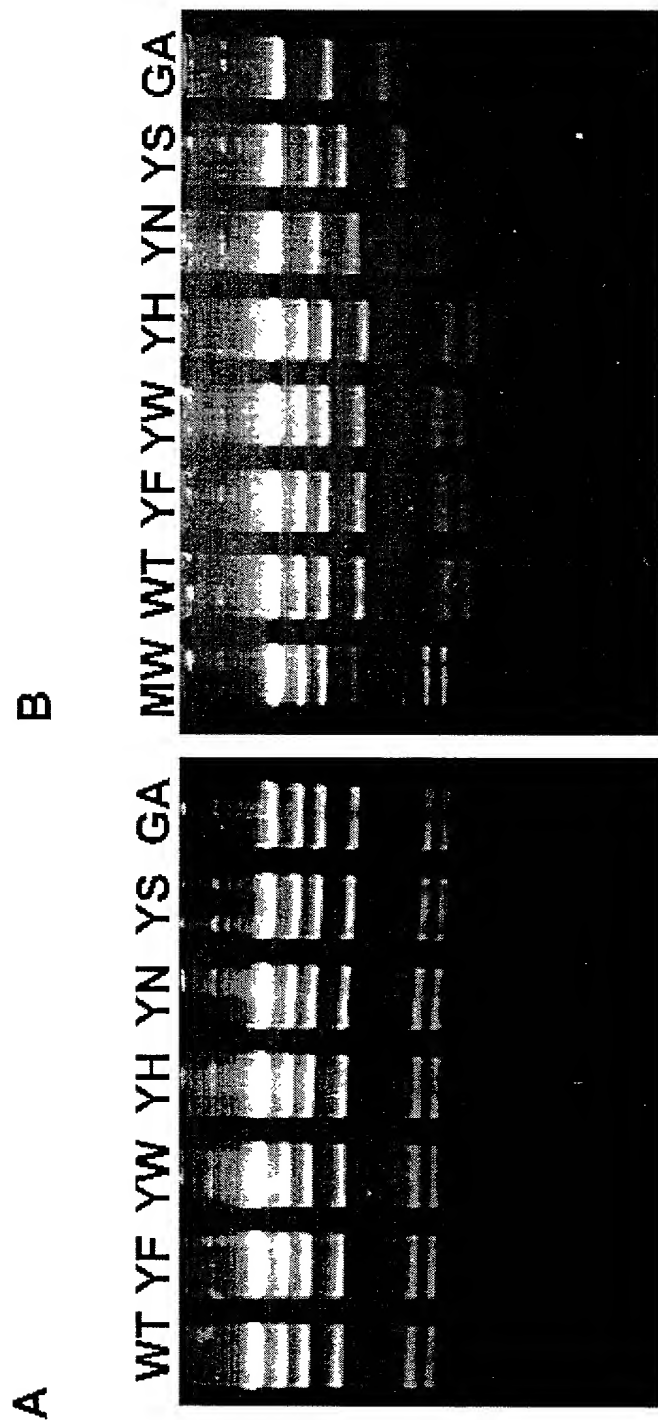|	E		R R	R						G (Y)	K E		E		L W E		consensus

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                      E        R R    R                  G (Y)  K E    E     L W E      consensus
 T.aggregans      E Y R R R L R T T Y L G G Y V K E P E R G L W E N
 T. litoralis     E Y K R R L R T T Y L G G Y V K E P E K G L W E N
 T. fumicolans    E L E R R - R G G Y A G G Y V K E P E R G L W E N
 T. spec. 9N7     E L A R R - R G G Y A G G Y V K E R E R G L W E N
 T. gorgonarius   E L A R R - R E S Y A G G Y V K E P E R G L W E N      Euryarchaea
 P. spec. KOD     E L A R R - R Q S Y E G G Y V K E P E R G L W E N
 P. abysii        E Y E R R L R E S Y E G G Y V K E P E K G L W E N
 P. furiosus      E Y Q R R L R E S Y T G G F V K E P E K G L W E N
 P. horikoshii    E Y E R R L R E S Y E G G Y V K E P E K G L W E N
 M. jannaschii    E Y R R R V L T T Y E G G Y V K E P E K G M F E D
 M. voltae        S Y R E R A K F S Y E G G Y V R E P L K G I Q E N
 S. solfataricus  T S A L I K G K G Y K G A V V I D P P A G I F F N
 S. acidocaldarius T A A V I K G K K Y K G A V V I D P P A G V Y F N
 P. islandicum    T K A I I K G K K Y A G A V V L D P P L G I F F N      Crenarchaea
 P. occultum      S E A L I K G K K Y Q G A L V L D P P S G I Y F N
 A. pernix        V G A I I K D K K Y R G A I V L D P P V G I F F R
 S. ohwakuensis   T A A I S K G K R Y K G A V V I D P P A G V F F N
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SEQ. ID. NO: 16

SEQ. ID. NO: 17

SEQ. ID. NO: 18

SEQ. ID. NO: 19

SEQ. ID. NO: 20

SEQ. ID. NO: 21

SEQ. ID. NO: 22

SEQ. ID. NO: 23

SEQ. ID. NO: 24

SEQ. ID. NO: 25

SEQ. ID. NO: 26

SEQ. ID. NO: 27

SEQ. ID. NO: 28

SEQ. ID. NO: 29

SEQ. ID. NO: 30

SEQ. ID. NO: 31

SEQ. ID. NO: 32

Figure 8

SEQ. ID. NO: 33
SEQ. ID. NO: 34

1/1
ATG ATA TTT GAC ACT GAC TAC ATA ACA AAG GAC GGT AAA CCC ATA ATT CGA ATT TTC AAG
Met ile phe asp thr asp tyr ile thr lys asp gly lys pro ile ile arg ile phe lys
61/21
AAA GAG AAC GGG GAA TTT AAA ATA GAA CTT GAT CCA CAT TTT CAG CCC TAC ATT TAC GCT
lys glu asn gly glu phe lys ile glu leu asp pro his phe gln pro tyr ile tyr ala
121/41
CTT CTC AAA GAT GAC TCC GCT ATT GAT GAA ATA AAA GCA ATA AAA GGC GAG AGA CAC GGA
leu leu lys asp asp ser ala ile asp glu ile lys ala ile lys gly glu arg his gly
181/61
AAA ATT GTG AGA GTA GTC GAT GCA GTG AAA GTC AAG AAG AAA TTT TTG GGG AGA GAT GTT
lys ile val arg val val asp ala val lys val lys lys lys phe leu gly arg asp val
241/81
GAG GTC TGG AAG CTT ATA TTT GAG CAT CCC CAA GAC GTC CCG GCC CTA AGG GGC AAG ATA
glu val trp lys leu ile phe glu his pro gln asp val pro ala leu arg gly lys ile
301/101
AGG GAA CAT CCA GCT GTG ATT GAC ATT TAT GAG TAC GAC ATA CCC TTT GCC AAG CGC TAC
arg glu his pro ala val ile asp ile tyr glu tyr asp ile pro phe ala lys arg tyr
361/121
CTC ATA GAC AAG GGC TTG ATC CCT ATG GAG GGC GAC GAG GAG CTT AAG CTA ATG GCC TTC
leu ile asp lys gly leu ile pro met glu gly asp glu glu leu lys leu met ala phe
421/141
GAC ATT GAG ACG TTT TAC CAC GAG GGA GAC GAG TTT GGG AAG GGC GAG ATA ATA ATG ATA
asp ile glu thr phe tyr his glu gly asp glu phe gly lys gly glu ile ile met ile
481/161
AGC TAC GCC GAT GAG GAA GAG GCA AGG GTA ATT ACA TGG AAG AAT ATT GAT CTG CCC TAC
ser tyr ala asp glu glu glu ala arg val ile thr trp lys asn ile asp leu pro tyr
541/181
GTT GAT GTT GTA TCC AAC GAA AGG GAG ATG ATA AAG CGG TTT GTG CAA ATT GTC AGG GAA
val asp val val ser asn glu arg glu met ile lys arg phe val gln ile val arg glu
601/201
AAA GAC CCG GAT GTC CTG ATA ACT TAC AAT GGA GAC AAC TTT GAT TTG CCG TAC CTT ATA
lys asp pro asp val leu ile thr tyr asn gly asp asn phe asp leu pro tyr leu ile
661/221
AAA AGG GCA GAG AAG TTA GGA GTT ACT CTT CTC TTG GGG AGG GAC AAA GAA CAC CCC GAG
lys arg ala glu lys leu gly val thr leu leu leu gly arg asp lys glu his pro glu
721/241
CCC AAG ATT CAC AGA ATG GGC GAT AGC TTT GCC GTG GAA ATT AAA GGC AGA ATT CAC TTT
pro lys ile his arg met gly asp ser phe ala val glu ile lys gly arg ile his phe
781/261
GAT CTC TTC CCG GTT GTG CGG AGA ACC ATA AAC CTC CCA ACA TAC ACG CTT GAG GCA GTT
asp leu phe pro val val arg arg thr ile asn leu pro thr tyr thr leu glu ala val
841/281
TAT GAA GCC GTC TTG GGA AAA ACC AAA AGC AAG CTG GGT GCG GAG GAA ATC GCC GCC ATC
tyr glu ala val leu gly lys thr lys ser lys leu gly ala glu glu ile ala ala ile
901/301
TGG GAA ACA GAG GAG AGC ATG AAG AAG CTG GCC CAG TAC TCG ATG GAA GAT GCT AGG GCA
trp glu thr glu glu ser met lys lys leu ala gln tyr ser met glu asp ala arg ala
961/321
ACT TAT GAA CTC GGA AAA GAG TTT TTC CCC ATG GAG GCA GAG CTA GCA AAG CTA ATA GGC
thr tyr glu leu gly lys glu phe phe pro met glu ala glu leu ala lys leu ile gly
1021/341
CAA AGC GTA TGG GAC GTC TCA AGA TCA AGC ACT GGC AAC CTT GTA GAG TGG TAC CTG TTA
gln ser val trp asp val ser arg ser ser thr gly asn leu val glu trp tyr leu leu
1081/361

SEQ. ID. NO: 33
SEQ. ID. NO: 34

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AGG GTG GCA TAT GAG AGG AAT GAG CTC GCT CCG AAC AAG CCG GAT GAA GAA GAG TAC AGA
arg val ala tyr glu arg asn glu leu ala pro asn lys pro asp glu glu glu tyr arg
1141/381
AGG CGT TTA AGG ACT ACT TAC CTG GGA GGA TAC GTA AAA GAG CCG GAA AGA GGC TTA TGG
arg arg leu arg thr thr tyr leu gly gly tyr val lys glu pro glu arg gly leu trp
1201/401
GAG AAC ATC ACC TAT TTA GAC TTT AGG TGC CTA TAC CCC TCA ATT ATA GTT ACC CAC AAC
glu asn ile thr tyr leu asp phe arg cys leu tyr pro ser ile ile val thr his asn
1261/421
GTC TCC CCT GAC ACT TTA GAA AGA GAA GGC TGC AAG AAT TAC GAT GTT GCC CCG ATA GTA
val ser pro asp thr leu glu arg glu gly cys lys asn tyr asp val ala pro ile val
1321/441
GGT TAT AAG TTC TGC AAG GAT TTT CCC GGT TTC ATT CCA TCT ATA CTC GGG GAA TTA ATC
gly tyr lys phe cys lys asp phe pro gly phe ile pro ser ile leu gly glu leu ile
1381/461
ACA ATG AGG CAA GAA ATA AAG AAG AAG ATG AAA GCT ACA ATT GAC CCA ATA GAA AAG AAA
thr met arg gln glu ile lys lys lys met lys ala thr ile asp pro ile glu lys lys
1441/481
ATG CTT GAT TAT AGG CAA AGA GCT GTT AAA TTG CAC GCA AAC AGC TAT TAC GGT TAT ATG
met leu asp tyr arg gln arg ala val lys leu his ala asn ser tyr tyr gly tyr met
1501/501
GGC TAT CCC AAG GCG AGG TGG TAC TCG AAG GAA TGT GCC GAA AGC GTT ACC GCG TGG GGA
gly tyr pro lys ala arg trp tyr ser lys glu cys ala glu ser val thr ala trp gly
1561/521
AGG CAC TAC ATA GAA ATG ACC ATA AAA GAG ATA GAG GAG AAA TTT GGA TTT AAG GTG CTA
arg his tyr ile glu met thr ile lys glu ile glu glu lys phe gly phe lys val leu
1621/541
TAT GCC GAC ACT GAT GGT TTT TAC GCC ACA ATA CCG GGA GAA AAA CCT GAA ACA ATC AAA
tyr ala asp thr asp gly phe tyr ala thr ile pro gly glu lys pro glu thr ile lys
1681/561
AAG AAA GCT AAG GAA TTC TTA AAA TAC ATA AAC TCC AAA CTT CCC GGT CTG CTC GAG CTT
lys lys ala lys glu phe leu lys tyr ile asn ser lys leu pro gly leu leu glu leu
1741/581
GAG TAT GAG GGC TTT TAC TTG AGA GGA TTT TTC GTC GCA AAG AAG CGC TAT GCG GTT ATA
glu tyr glu gly phe tyr leu arg gly phe phe val ala lys lys arg tyr ala val ile
1801/601
GAC GAA GAA GGT AGG ATA ACG ACA AGG GGT CTG GAA GTT GTA AGG AGG GAC TGG AGC GAA
asp glu glu gly arg ile thr thr arg gly leu glu val val arg arg asp trp ser glu
1861/621
ATA GCC AAA GAG ACC CAG GCT AAA GTC TTG GAG GCA ATA CTT AAA GAA GAT AGT GTC GAA
ile ala lys glu thr gln ala lys val leu glu ala ile leu lys glu asp ser val glu
1921/641
AAA GCT GTG GAA ATC GTT AAG GAC GTT GTT GAG GAG ATA GCA AAA TAC CAA GTC CCG CTT
lys ala val glu ile val lys asp val val glu glu ile ala lys tyr gln val pro leu
1981/661
GAA AAG CTT GTT ATC CAC GAG CAG ATT ACC AAG GAT CTA AGT GAA TAC AAA GCC ATT GGG
glu lys leu val ile his glu gln ile thr lys asp leu ser glu tyr lys ala ile gly
2041/681
CCT CAT GTA GCA ATA GCA AAG AGG CTT GCT GCA AAG GGA ATA AAA GTG AGA CCC GGC ACG
pro his val ala ile ala lys arg leu ala ala lys gly ile lys val arg pro gly thr
2101/701
ATA ATA AGC TAT ATC GTC CTC AGG GGA AGC GGA AAG ATA AGT GAC AGG GTA ATT TTG CTT
ile ile ser tyr ile val leu arg gly ser gly lys ile ser asp arg val ile leu leu
2161/721
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SEQ. ID. NO: 33
SEQ. ID. NO: 34

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TCA GAG TAT GAT CCG AAA AAA CAC AAG TAC GAC CCC GAC TAC TAC ATA GAA AAC CAA GTT
ser glu tyr asp pro lys lys his lys tyr asp pro asp tyr tyr ile glu asn gln val
2221/741
CTG CCG GCG GTG CTT AGG ATC CTT GAA GCC TTC GGC TAC AGA AAA GAG GAC TTA AAA TAC
leu pro ala val leu arg ile leu glu ala phe gly tyr arg lys glu asp leu lys tyr
2281/761
CAA AGC TCA AAA CAG GTT GGA CTG GAC GCG TGG CTT AAG AAG TAG
gln ser ser lys gln val gly leu asp ala trp leu lys lys AMB
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